

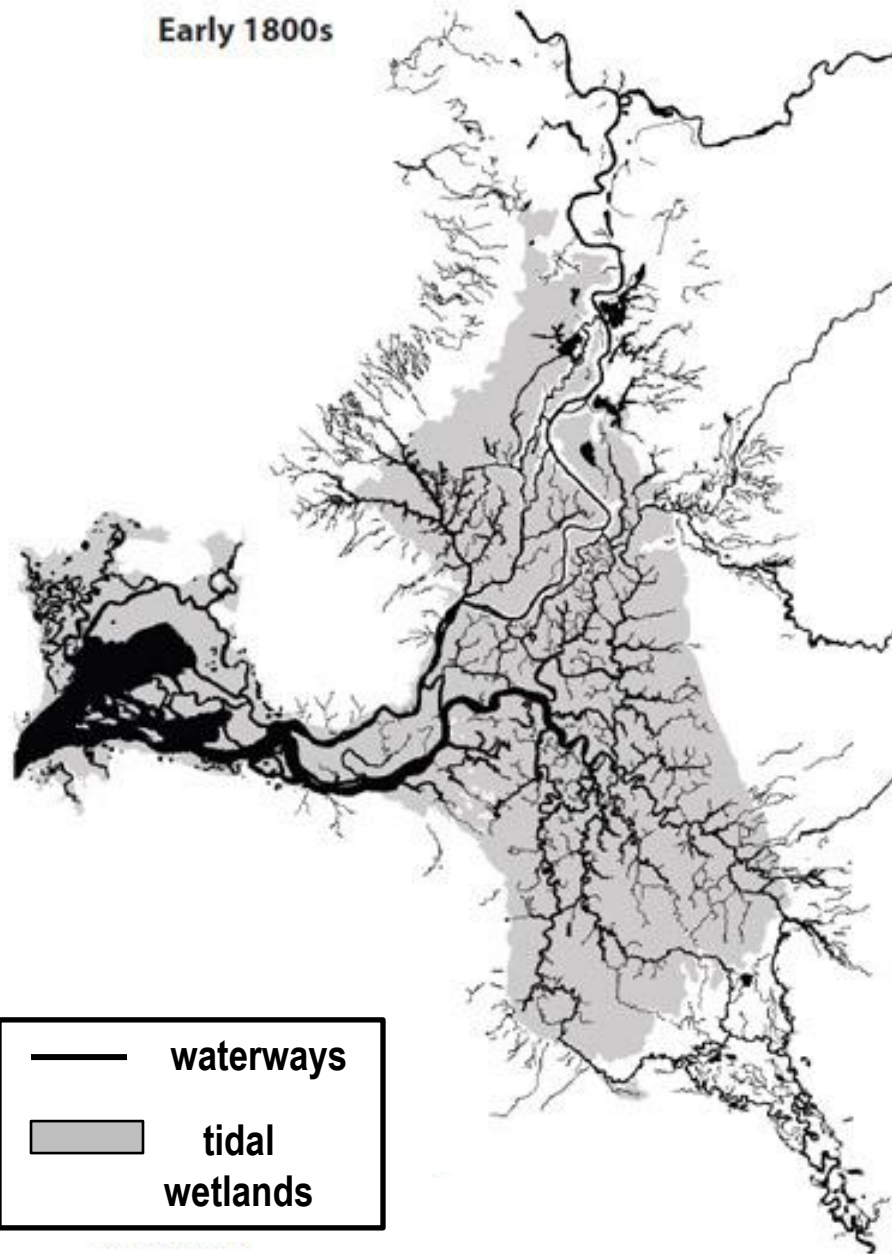
# **FISH RESTORATION PROGRAM AGREEMENT**

**Implementing Habitat Restoration  
Requirements Of The Biological  
Opinions**

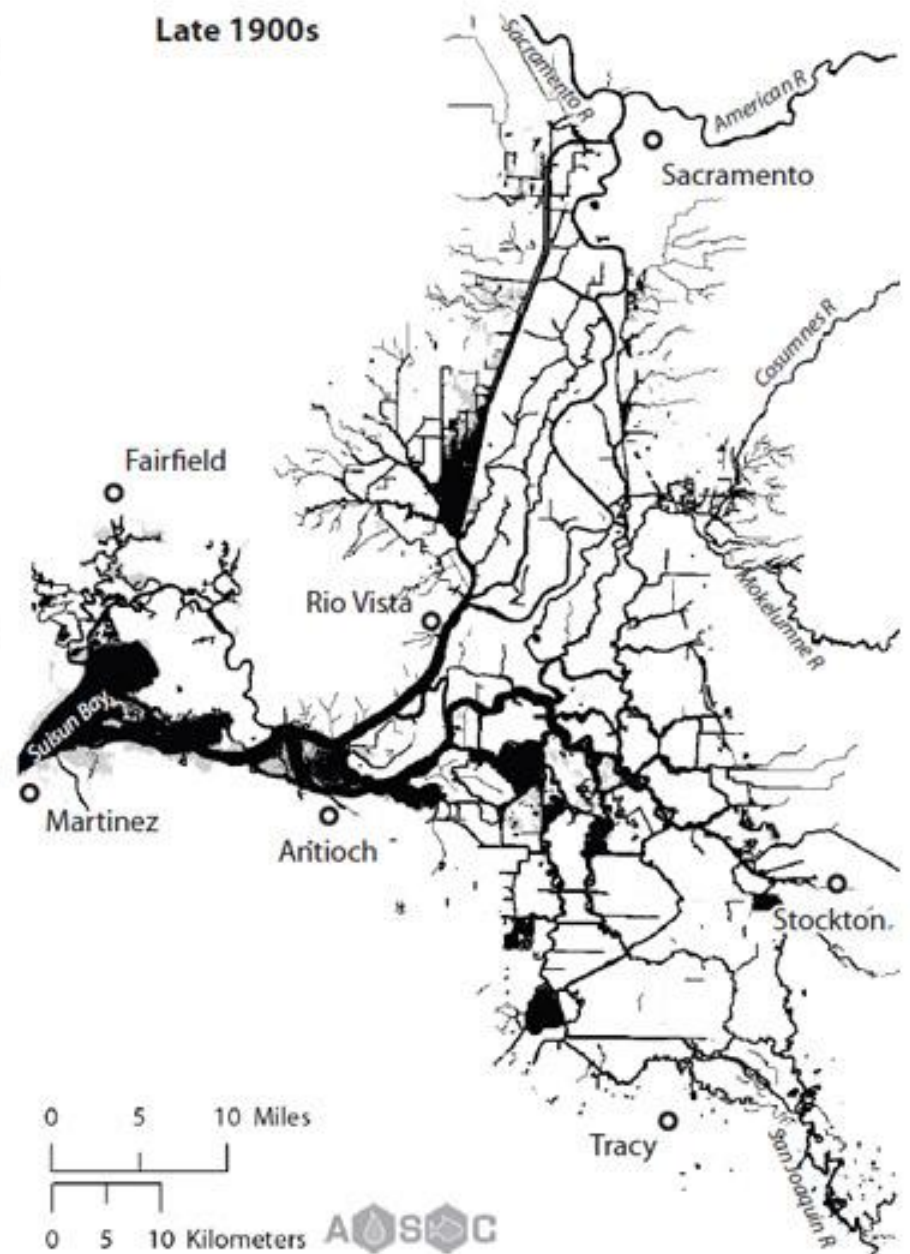
**Dennis McEwan  
Department of Water Resources**



Early 1800s



Late 1900s



Whipple et al. 2012: Sacramento-San Joaquin Delta Historical Ecology Investigation



# Listed Fish Species



Reclamation Photograph by René Reyes



Source: FWS



Reclamation Photograph by René Reyes



Source: DWR Aquatic Ecology



Photo by Pat Higgins

Source: FWS

Source: NOAA

# **Fish Restoration Program Agreement (FRPA)**

- Executed October 2010
- Joint DWR and DFW program
- Fulfill habitat restoration requirements of the Biops and ITP
- Establishes framework for selecting, funding, implementing and managing restoration projects

# FRPA Goals and Objectives

- **Restore 8,000 acres of tidal habitat**





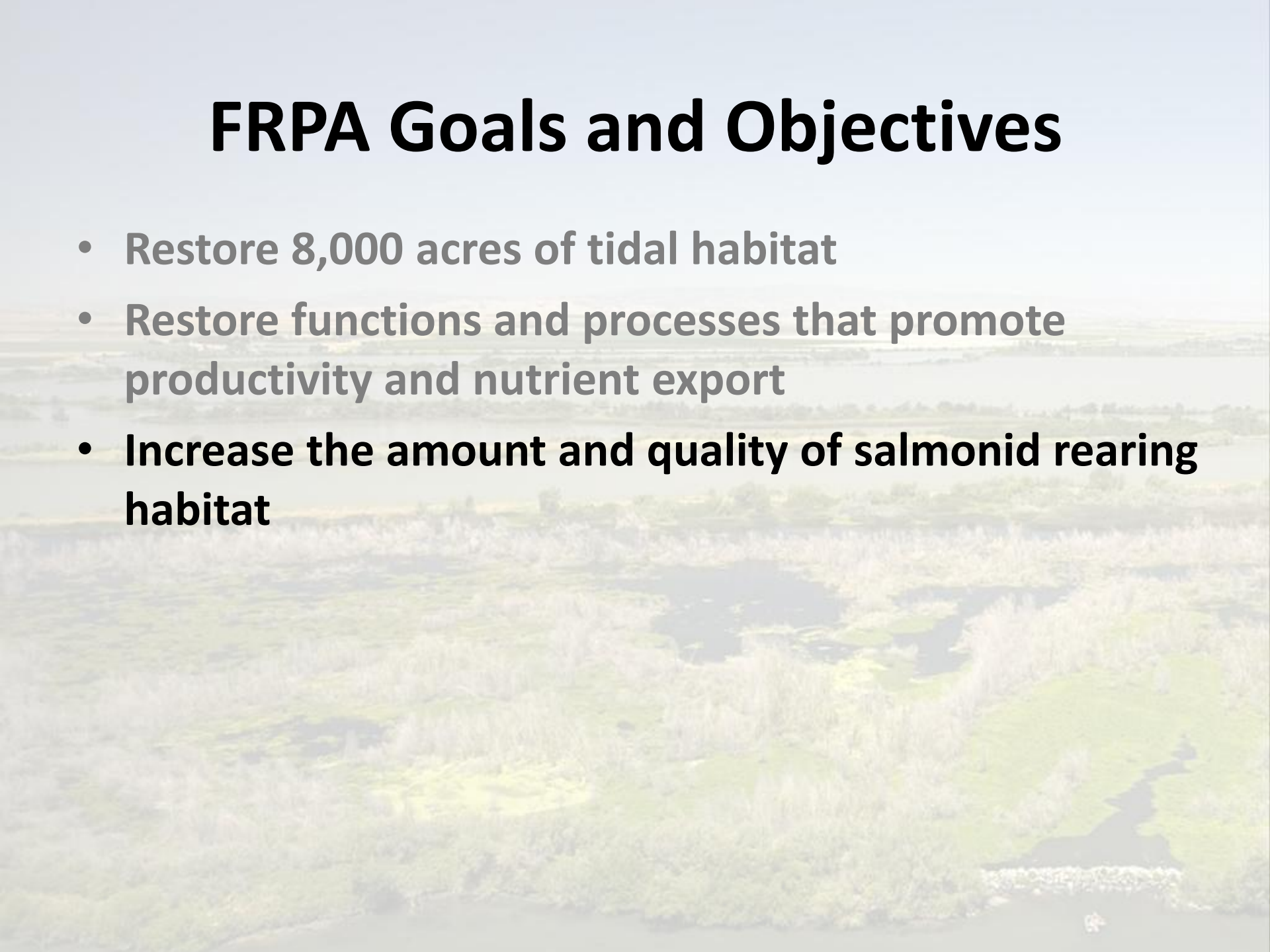
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- Monitor and adaptively manage restoration sites
- **Maintain consistency with other Delta plans and programs**

# Restoration Principles

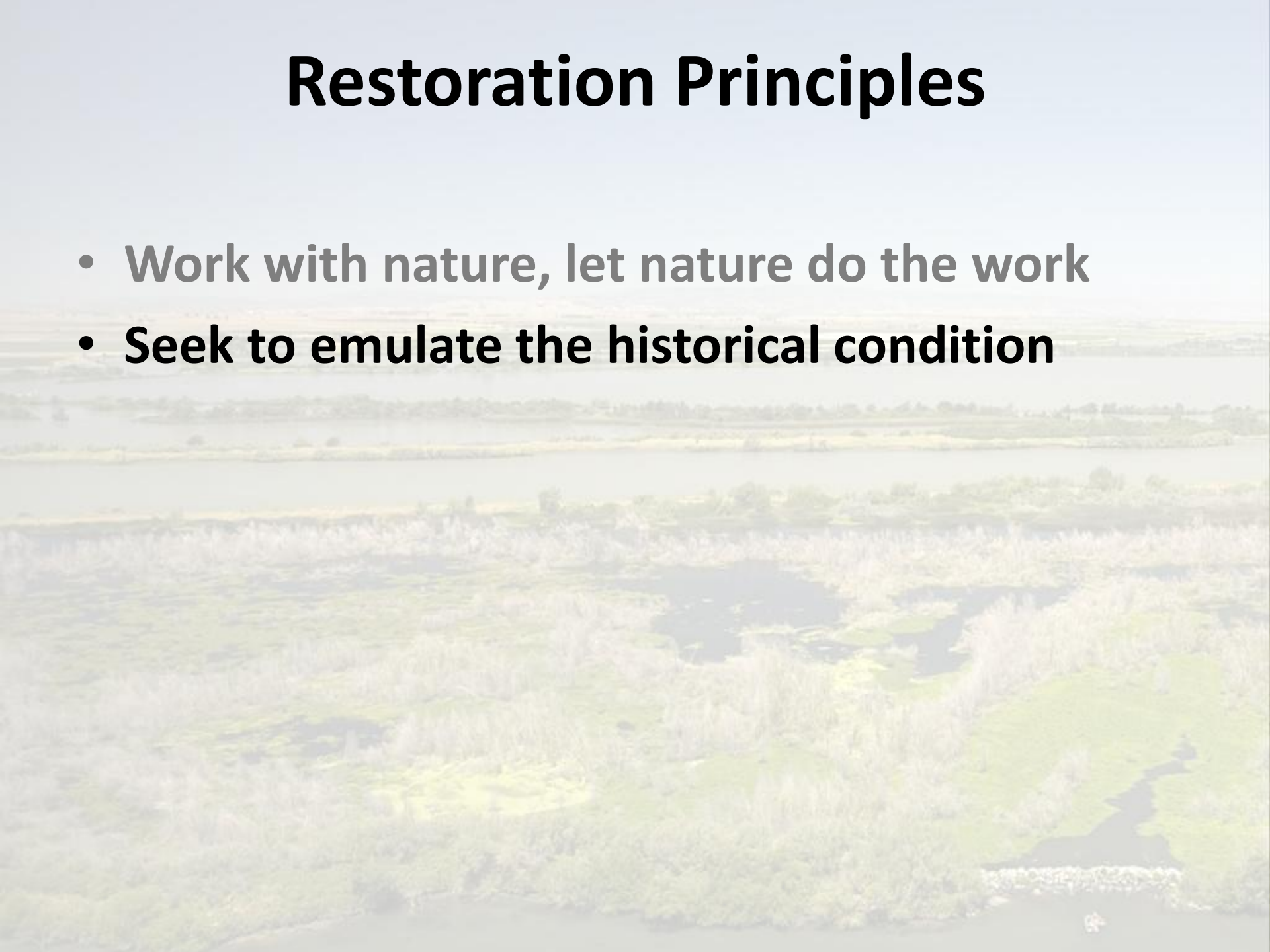
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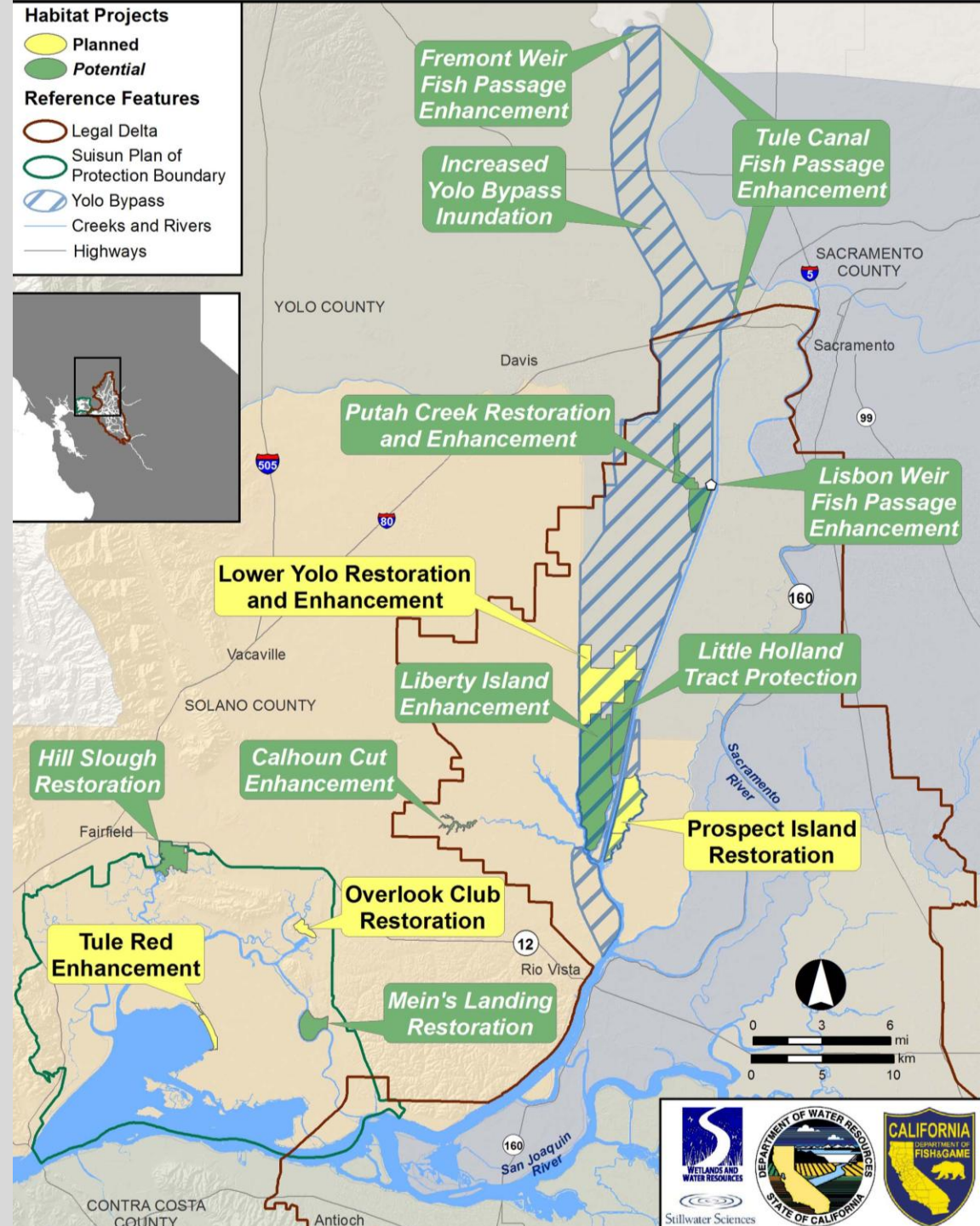
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# Restoration Principles

- Work with nature, let nature do the work
- Seek to emulate the historical condition
- Provide a diversity of habitat types
- Discourage colonization by non-native species
- Design projects to be adaptively managed
- **Monitor outcome and refine conceptual models**

# FRPA Near-term Actions

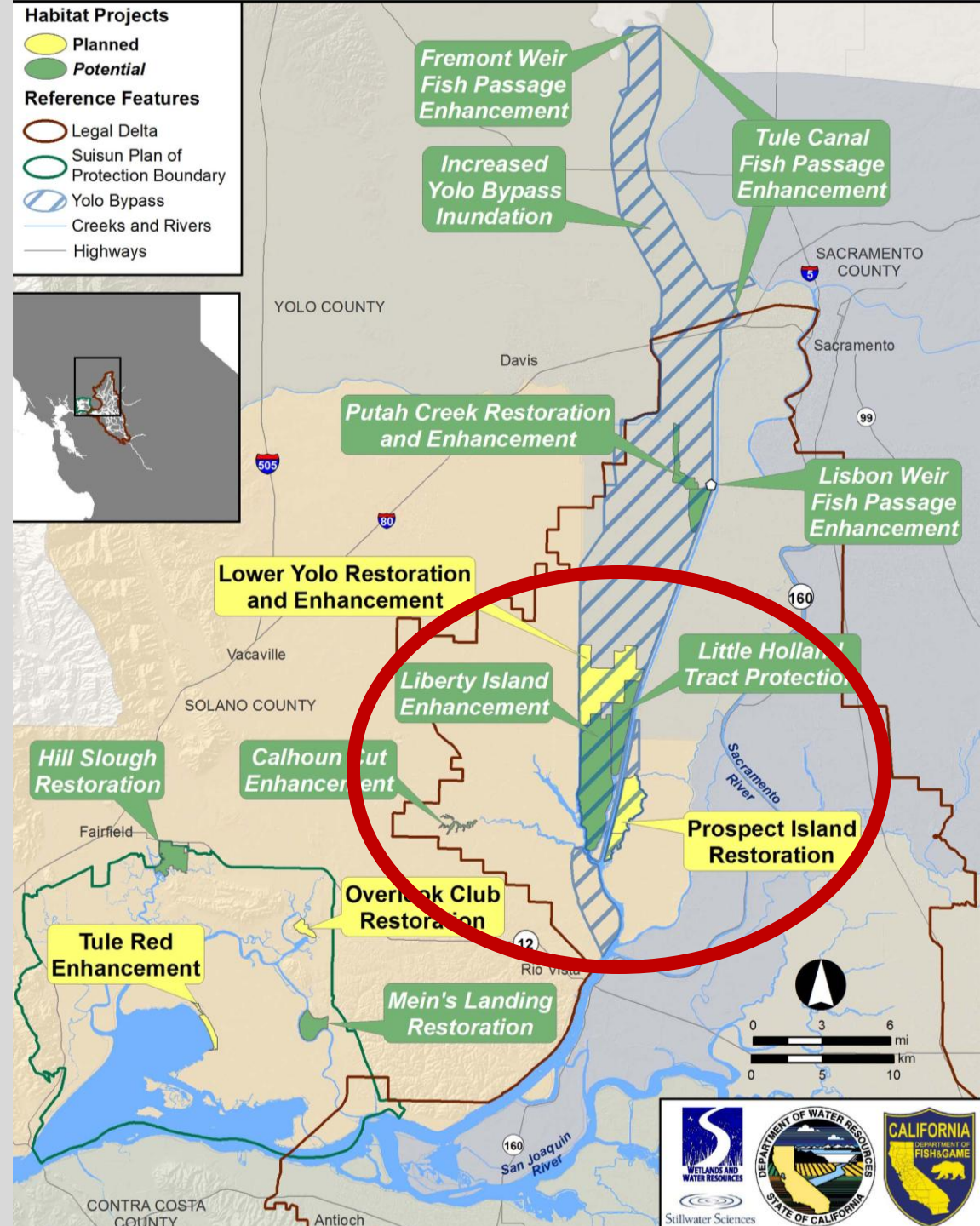
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- Three geographic regions
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# Cache Slough Complex



- Existing tidal marsh habitat
- Connected to Yolo Bypass floodplain
- Elevations are conducive to tidal habitat restoration
- Dead-end channels and shallow open water
- High turbidity
- High primary and secondary productivity
- Delta smelt and other native fishes
- Land in public ownership



# Summary

- FRPA is a joint DWR-DFW program to facilitate implementation of Biop/ITP restoration requirements
- Restoration goals are focused on recovery of Delta native fish
- Objectives include restoring natural processes, habitat creation, and food web production
- Stakeholder involvement, monitoring, and adaptive management are critical to the success of the program



# Thank You

<http://wwwdwr.water.ca.gov/environmentalservices/frpa.cfm>

